Functional Beverages: New ingredients and technologies to quench the thirst for beverage innovation

September 16, 2011
By Jennifer Grebow [1]

New ingredients and technologies to quench the thirst for beverage innovation.
Depending on who you’re talking to, functional beverages are either set for growth or thirsting for innovation. For those feeling optimistic, hopes are high that new ingredients and technologies will help functional beverages gain traction.

As a delivery system, beverages can be a refreshing way for consumers to get an increasing range of health-promoting ingredients. However, beverages are not without their challenges. As such,
ensuring that today’s in-demand ingredients can remain stable and efficacious in a ready-to-drink product is key.

A Positive Outlook

“This is probably one of the most exciting times in the beverages business,” says Jim Tonkin, founder and principal of Healthy Brand Builders, which has developed numerous successful enhanced-beverage brands. He says—using a golf ball metaphor—that functional drinks are now entering a second, more sophisticated stage of development. “When the ball leaves the tee, it starts low and then ends up moving into a second sphere of height—which gives it distance. What we saw in the first stage of the golf ball flight was brands such as Vitaminwater, and even some of the earlier brands like Red Bull, come to market. Those brands set the bar in the marketplace relative to what others would be doing downstream. Consumers opted into those products. Now, however, the functional benefit of a product like Vitaminwater is miniscule by comparison to some of the condition-specific products that are moving into the market today and those that are in R&D and will be coming to market in the next three to five years.” (For more on condition-specific beverages, see the sidebar on page 66.) Ingredients supplier Caravan Ingredients (Lenexa, KS) says there is room for diversity. “The functional beverages category is growing at an astounding rate, and manufacturers are approaching it from many angles,” says David Pfefer, product manager for Caravan’s enrichment/fortification blends division. “Some merely want to add a touch of the basics, like vitamins A and D, to dairy-based drinks. Others are adding a broader palette of nutrients at levels ranging from 10 to 100% Recommended Daily Intake. Still others are adding nutrients in order to make health claims, such as the cardiovascular effects of phytosterols.”

In fact, ingredient suppliers are often the ones showing marketers what’s possible. “Manufacturers are waiting for new ingredients that allow them to differentiate their products in the marketplace and reinvigorate the entire category,” says Paul Dijkstra, CEO of InterHealth Nutraceuticals (Benicia, CA).

Protein Progress

A big formulating challenge is maintaining solubility, stability, and transparency while working with acidic pH levels. A lot of recent innovation in this area has involved protein ingredients—both vegetable- and dairy-based.

Typically, soy protein is poorly soluble in acidic beverages. However, at the Institute of Food Technologists’ (IFT) trade show in June, Archer Daniels Midland (ADM; Decatur, IL) unveiled Clarisoy, a 100%-transparent soy protein specifically for acidic beverages. Clarisoy 100, the first product to launch in the Clarisoy line, remains 100% soluble at a pH below 4.0. To demonstrate Clarisoy’s capabilities, at the IFT show ADM served an orange-mango drink made with Clarisoy. The company says Clarisoy opens up opportunities for sports nutrition and citrus- and fruit-flavored beverages, including powdered drinks. It can also be paired with whey protein isolate.

“[Market researcher] Euromonitor International projects double-digit global growth in the sport and energy markets and the fruit and vegetable drink market through 2015. Until now, those application areas have been off limits to soy proteins due to formulation challenges of using soy in low-pH beverages,” says Courtney B. Kingery, marketing and customer development manager for ADM Specialty Products, Oilseeds.

Moving away from soy, Fonterra (Auckland, New Zealand) offers a clear whey protein isolate called ClearProtein, suited for transparent beverages like functional waters and sports drinks. The line comprises several ingredient versions, including those for acidic beverages or powdered mixes. UK-based dairy supplier Volac also offers a clear whey protein, called Volactive Hydapro. The company says it offers excellent solubility, ease of processing in clear beverages, and a stable shelf life of up to 18 months. It’s marketed as an ingredient for postworkout recovery, thanks to whey protein’s help activating muscle protein synthesis.

This spring, Hilmar Ingredients (Hilmar, CA) introduced Hilmar 9420, a whey protein isolate intended for use in acidic beverages. The company says the ingredient is designed to reduce astringency, which is typical of whey-based beverages. Hilmar demonstrated the ingredient’s benefits in a clear, high-protein sports drink and a French vanilla whey and soy shake for female nutrition. Other protein innovations abound. Solbar Q 735 is a calcium-fortified isolated soy protein introduced by Solbar (Ashdod, Israel) last year. Instead of targeting transparent or acidic drinks, Solbar Q 735 is specifically designed to add calcium to milk-type beverages, such as soy milk.
“The aim was to have a dairy-free vegetarian alternative to cow’s milk,” says David Kraus, Solbar’s global applications manager. “In nonfortified soy milk beverages, calcium level is low in comparison to cow’s milk. Therefore, the fortification with calcium enables [marketers] to produce a similar nutritional source to cow’s milk, without including animal-source ingredients.” The ingredient can withstand the ultra-high-temperature (UHT) processing of milk-type products, without causing the protein sediment that would typically occur.

Also, sometimes a very high protein content is desired but high beverage viscosity is not. Ingredia Nutritional (Arras, France) may have a solution—which, incidentally, was declared a winner this year in the Vitafoods trade show’s first-ever Nutraceutical Business & Technology awards, in the best new finished-product category.

The sports-recovery concept beverage, called Refuel & Repair, has a high protein content of 12% milk protein hydrolysate and highly purified isolate. Thanks to the company’s Prodiet 87 B Fluid technology, marketers can include higher levels of protein in their beverages—up to 30 г of protein per 250-ml bottle—without increasing viscosity.

And, back to vegetable-based protein, last year Cyvex Nutrition (Irvine, CA) introduced Alfapro Agglomerated, a highly dispersible grade of its branded Alfapro alfalfa protein concentrate, for marketers looking for nutrient-dense, green-protein ingredients.

“Though it retains the same nutrition profile as Cyvex’s existing Alfapro line, Alfapro Agglomerated benefits from a particle-binding and solidifying process that improves powder consistency, reduces bulk density, and eliminates premixing. As a result, beverage manufacturers are guaranteed an ingredient that can be combined with other components to create a homogenous mix, deliver superior dispersibility, and ensure a lump-resistant finished product,” the company says.

**Vitamins, Minerals, and More**

Vitamins, minerals, and other ingredients are also evolving for drinks.

“The market for flavored waters, teas, and other clear beverages has increased the demand for water-soluble forms of vitamins A, D, E, and K, and this demand is being met by some truly innovative forms of these vitamins, such as the ‘clear’ forms,” says Caravan Ingredients’ Pfefer.

“These are either emulsified forms of these oily vitamins, or dry forms that are so small in particle size that they do not refract light and therefore are undetectable.”

Carotech (Edison, NJ) offers TocoBev 15%, the company’s new water-dispersible, powder-form tocotrienol/tocopherol complex. Emulsifiers create a fine particle size, allowing the ingredient to be easily dispersed. While TocoBev 15% cannot produce a clear beverage, it can be used in acidic ones. This spring, LycoRed (Be’er Sheva, Israel) announced a beverage-friendly addition to its CapsuDar vitamin D3 line: CapsuDar D3 CWD. Meant for functional beverages and waters, the ingredient is highly dispersible in liquid and suitable for a wide range of pH levels.

The ingredient takes advantage of microencapsulation. “The product’s particle size and the ingredients in the formulation provide a clear solution,” said Udi Alroy, formerly vice president of global marketing and sales. Alroy also stated that CapsuDar D3 CWD withstands heat processing like pasteurization.

Mineral ingredients are also pushing forward. In November, Innophos (Cranbury, NJ) won an award at the Health Ingredients Europe trade show, for VersaCal Clear, a highly soluble calcium phosphate designed for clear beverages such as waters and juices. It is touted for maintaining bone health.

“When it comes to clear beverages, calcium phosphates are insoluble, leaving a cloudy appearance—except VersaCal Clear,” stated Amr Shaheed, a senior scientist at the company.

Caravan Ingredients’ Pfefer adds, “In the top tier of functional beverages, we see a demand for specialty chelated minerals, which are believed to be easier on the stomach and more bioavailable during digestion.”

With demand growing for fiber, this ingredient also is seeing increased activity in beverages. “The whole industry is abuzz with talk of fiber,” says Nutraceuticals International’s (Elmwood Park, NJ) managing director David Romeo. He points out that the company’s Baozene-brand baobab fiber is water-soluble and easy to include in beverages. It is also transparent and stable in acidic beverages. Moreover, he adds, it not only adds fiber but nutrients such as vitamins B and C, potassium, calcium, iron, and magnesium.

Also in the fiber family, last year Colloïdes Naturels International (Rouen, France) launched a new, highly clarified version of its Fibregum gum acacia ingredient, called Fibregum Clear, for use in beverages. (Gum acacia serves as an emulsifier.) The company says Fibregum Clear offers the same health benefits as conventional Fibregum—that is, a prebiotic effect to help balance intestinal
Fibersol-2 is Archer Daniels Midland’s soluble fiber that is suited for beverages. The ingredient is a digestion-resistant maltodextrin that is transparent, adds minimal viscosity, and can be used in acidic formulations. Fibersol-2 can also help solve formulating challenges. For instance, it can help mask metallic tastes of calcium and iron, improve the bitter taste of amino acids and isoflavones, reduce the fishy flavors of omega-3s, mask acidic notes, and reduce strong tastes from emulsifiers in protein drinks.

Last year, krill manufacturer Azantis Inc. (Boulder, CO), together with solubilization specialist Ceutical Switzerland AG (Zurich), launched a water-soluble Antarctic krill oil. The companies called it the industry’s first water-soluble krill oil. The carotenoid astaxanthin is now also water-soluble, thanks to Fuji Health Science’s (Burlington, NJ) AstaReal Clear 75 ingredient introduced last year. With FDA GRAS status, it can be used in transparent and acidic beverages, without cloudiness or sediment. “Astaxanthin is an oil-soluble, lipid-based material, and beverages are aqueous. As we know, oil and water do not mix,” says Charles DePrince, Fuji Health Science’s president and CEO. “So, to successfully incorporate astaxanthin in a beverage, it must first be emulsified and rendered water soluble.”

Water-Soluble Technologies

Noting demand, several companies have unveiled new solubility solutions. Hormel Foods Corp. (Austin, MN) recently introduced the technology for Hormel Fuxions, which creates water-soluble versions of a range of ingredients, such as vitamin D, omega-3 fatty acids DHA (docosahexaenoic acid) and EPA (eicosapentaenoic acid), and CoQ10. The technology can be used for both transparent and acidic beverages. Chet Rao, PhD, the company’s marketing manager, says feedback has been positive. “The greatest demand has been for vitamin D and EPA/DHA products.” He explains that long-chain polyunsaturated fatty acids like DHA and EPA “are more prone to oxidation, making their incorporation inherently unstable in water-based beverages. Our patented technologies allow these inherently unstable molecules to be formulated in shelf-stable products.”

Preventing oxidation is also the concept behind SoluBlend Technologies’ (Frankfort, IL) eponymous water-soluble technology. CEO Richard Staack, PhD, says SoluBlend was designed to meet demands such as stability, clarity, cost, and flavor, compared to other solutions on the market. “Most of the existing technologies fail to address these aforementioned demands in the industry,” he says. “Currently, encapsulation and emulsification are the most prominent technologies used to increase the water solubility of functional ingredients. Some disadvantages of these techniques include high cost and limited applicability concerning functional ingredients. Most ingredients by nature are not suitable for use in functional beverages and foods because of their off-flavor and lack of solubility. Techniques like encapsulation and emulsification do not ensure the full integration of functional actives into beverages or ensure a crystal-clear solution.”

Staack says that SoluBlend reduces the rate of oxidation, allowing the converted ingredient to dissolve completely in the end-product, for a clear solution—without affecting functional actives or their health benefits. SoluBlend can be used for an array of ingredients, including omega-3 fatty acids; CoQ10; resveratrol; fat-soluble vitamins A, D, E, and K; and vegetable and fruit oils, including chia and cranberry. It is suited for acidic beverages.

Flavor, Color…and Mouthfeel

Flavor and color are also part of the drink mix. Here’s what’s brewing—especially in the natural space.

Earlier this year, Food Ingredient Solutions (FIS; Teterboro, NJ) introduced FISclear, a line of transparent, highly stable natural colors that the company says addresses a frequent complaint when it comes to using natural colors—lack of stability. FISclear uses GMO-free emulsifiers to help maintain stability. “The advantages are that smaller micelles give better stability and increase product shelf life since it takes longer for the micelles to agglomerate and ring or settle out. It also increases transparency and reduces haze—in fact, these colors have no haze at all with a particle size below 100 nm,” says firm president Jeff Greaves.

Currently, the FISclear line includes only colors, such as those from beta-carotene, mixed carotene, carrot oil, paprika, canthaxanthin, and lycopene. (Colors range from pale to greenish yellow through peach, orange, pink, and deep red.) However, says Greaves, the company is exploring applying the
technology to other ingredient areas. “We are mainly improving on shelf life and stability for our colors, but we could use the same techniques to emulsify other items which might otherwise be difficult to work with, such as omega-3 fatty acids. Another advantage of our technique is clarity, which would be helpful if you wanted to put an oil-soluble nutraceutical like omega-3 into water, for example.” Using the same emulsion technology, the company has also developed a line of flavor oils, such as Valencia orange oil, grapefruit, lemon, and lime emulsions.

And nothing matters if a beverage can’t taste good. At the IFT show, flavor specialist Virginia Dare (Brooklyn, NY) held a hands-on smoothie-making workshop for journalists, allowing us to attempt creating our own smoothie concoctions. It taught us two things: 1) most of us had better stick to our day jobs, and 2) when developing a beverage, it’s very difficult to get the flavor just right.

Comax Flavors (Melville, NY) now offers a salt masker for beverages that require a certain level of sodium—such as those for sports nutrition—while enhancing their sweetness. “The functionality of products such as sports beverages requires extra salt, which in general does not taste good,” explains Agneta Weisz, vice president of flavors and technology. “This isn’t such a problem if you’re marketing to the serious athlete who is willing to trade off flavor for increased performance. But today, sports drinks are not only passed around on the sidelines, they are drunk anywhere, any time, virtually as soft drinks. This means that flavor is now one of the keys to competitiveness and profitability in the industry.”

Weisz lists the following as challenging to mask: caffeine, high-ORAC-value extracts, fish oil, tea polyphenols, protein concentrates, hydrolyzed whey protein, some forms of dietary fibers, and some herbals. “Some of these ingredients have a bad smell and/or unpleasant taste, like vitamin B1, fish oil, and hydrolyzed whey protein,” Weisz says. “Other ingredients taste unnatural or bitter, like polyphenols, polypeptides, herbal supplements, and soy protein concentrates.”

On the sweet side, conventional ready-to-drink beverages often come under scrutiny for high sugar content. Thus, more beverage companies are making the move toward zero-calorie natural sweeteners like stevia. “The beverage industry has played a significant role in the strong growth stevia has experienced over the past year,” says Jason Hecker, vice president of global marketing for PureCircle (Oak Brook, IL). “We are seeing success in the flavored water and juice categories lead to demand for stevia in other beverage categories. Examples of this expansion include recent activity in carbonated soft drinks, sports drinks, and iced tea.”

Stevia producer Sweet Green Fields LLC (SGF; Bellingham, WA) agrees that demand for stevia-sweetened sodas has grown dramatically. Earlier this year, the company signed a multiyear agreement to supply its California-grown stevia to Zevia, a line of zero-calorie sodas. “Zevia is now the number one-selling soda in natural product stores and the fastest-growing soda brand in supermarkets,” says the brand’s CEO Paddy Spence.

Hecker says that many manufacturers are now attracted to sugar-stevia blends, such as PureCircle’s stevia sucrose, which marries sugar and stevia together in a single crystal, for a still-reduced-calorie solution. “In fact, half of all stevia-sweetened products worldwide to date in 2011 utilize a combination of stevia and sugar to naturally achieve an acceptable level of calories.” Sugar also imparts important characteristics to beverages, and when sugar is removed and low-calorie sweeteners introduced, product formulas may need adjustment.

“When producing calorie-reduced beverages, manufacturers typically lower the sugar content of their product,” says Andy del Rosal, team leader of Cargill’s (Minneapolis) beverage applications scientist. (Cargill produces Truvia stevia-based sweetener, used by beverage brands such as Vitaminwater10 and Vitaminwater Zero.) “This sugar reduction affects the sweetness of the beverage, but it also impacts the flavor and the mouthfeel—and thus, the total taste experience.” Sometimes, when zero-calorie, high-intensity sweeteners are added, manufacturers might add flavor maskers or other flavors to adjust a product. However, says del Rosal, “Although this combination effectively targets the loss of sweetness, the beverage is still likely to present a ‘thinner’ mouthfeel and a lower taste profile.”

Cargill recently concluded a comprehensive consumer sensory study at North Carolina State University to determine how properties such as mouthfeel are affected when sugar is removed and other sweeteners introduced. “This study was designed to understand how replacing a nutritive sweetener with a high-potency sweetener creates differences in the taste, sweetness, and mouthfeel. At Cargill, our hypothesis was that consumer liking of a product is driven by sweetness, flavor, and mouthfeel, and the key to creating better-tasting, reduced-calorie products is to
formulate with ingredients that balance all three,” says Brian Guthrie, a research fellow at Cargill Global Food Research.

As a result of its research, Cargill has introduced a program specifically for reduced-calorie beverages, called TasteWise. Through TasteWise, Cargill examines the multisensory properties of a product, including mouthfeel, to determine how to optimize all of a product’s attributes for better-balanced flavor, sweetness, and texture. “Cargill has screened numerous texturizing ingredients and blends and can rapidly determine the optimal blend to improve mouthfeel based on specific applications,” del Rosal explains. For instance, Triliisse, TasteWise’s new texturizing blends, can allow for the use of less sweetener or other ingredients, while maintaining mouthfeel.

The company applies its expertise in tribology—the science of interacting surfaces in motion—during evaluation “to more accurately mimic and measure what goes on inside the mouth when a beverage is consumed.” For instance, how a beverage interacts with the consumer’s tongue, gums, teeth, and palate may play as important a role to mouthfeel as does a beverage’s viscosity.

“A key element of TasteWise reduced-calorie solutions is an innovation in multisensory product development that enables the delivery of superior mouthfeel in beverages with a precision previously unknown in the beverage industry,” says del Rosal. He says Cargill’s TasteWise solutions (which do not necessarily have to use Cargill sweeteners) will also help speed up product-development time.

With mouthfeel in mind, Danisco (Copenhagen) has introduced Bev Clear as part of its Grindsted xanthan gum line. Xanthan gums and hydrocolloids are typically used as thickening and stabilizing agents. “Beverage applications typically present their own unique challenges because they tend to be very low in solids, especially in the case of low- or no-calorie products,” says John Breeden, vice president of enablers for Danisco regions NAFTA (U.S., Canada, and Mexico) and SAMSA (South America and South Africa). “A hydrocolloid like xanthan gum is used for addition of viscosity/mouthfeel or particle suspension.”

Bev Clear’s advantage is that it is a transparent xanthan gum. Unlike many hydrocolloids, like regular xanthan gum and guar gum, which can produce a cloudy appearance, Bev Clear remains transparent. “Moreover, thickening and stabilizing properties have been optimized so that a significant dosage and cost-saving reduction of up to 30% can be achieved,” Breeden adds.

Sidebar 1: Cheers to Responsible Formulating

The allure of new ingredients will continue to beckon beverage marketers and attract new players. However, as always, there are a few rules to keep in mind.

Blue California’s (Rancho Santa Margarita, CA) executive vice president Cecilia McCollum cautions beverage marketers to use the company’s L-TeaActive L-theanine responsibly. “I have found products in the market that contain only 5 mg of L-theanine, of other brands, and 5 mg is not enough for efficacy. Consumers should look for products containing no less than 50 mg/serving to receive the health benefits L-TeaActive provides.”

Karen Todd, director of marketing for Kyowa Hakko USA (New York City), agrees. “So often, you only see a sprinkling of ingredients in a product; the consumer tries it and doesn’t feel a difference because they never received the true benefits of the ingredients. Under-dosing is a true disservice to the consumer and the industry. Consumers trust companies to develop formulations that are safe and that support the specific benefits listed on the label. As manufacturers develop product formulations, they should be aware of the science supporting an ingredient.”

And, she says, avoid “beverage soup,” adding that “just because an ingredient is in the brain-health category does not mean that all of the ingredients should be thrown in together. Some ingredient mechanisms and benefits might be similar, complementary, or the direct opposite—they might even counteract the benefits of a formulation.”

Sidebar 2: Tasted at IFT

If tasting is believing, then at the Institute of Food Technologists’ trade show in New Orleans in June, ingredient exhibitors convinced me just how delicious functional beverages can be. In the spirit of New Orleans, Cognis (Monheim, Germany), now part of BASF Corp. (Florham Park, NJ), served up Healthy Hurricane, a good-for-you version of the New Orleans favorite. Among other ingredients, the beverage contained Xangold lutein esters, LycoVit lycopene, vitamin E, and beta-carotene to lend both nutritional value and natural color. In addition, an Omega Chai Tea boasted Dry n-3, with each serving of tea providing 100 mg of EPA and DHA omega-3 fatty acids.
National Starch Food Innovation and Corn Products (Somerset, NJ) highlighted a Vitality Shot featuring their Aquamin calcified mineral for bone health, Nutriose soluble fiber for wellness, and Enliten Reb A stevia. Moreover, the companies’ Q-Naturale emulsion system helped keep the beverage transparent, despite its citrus flavoring.
The U.S. Dairy Export Council (Arlington, VA) demonstrated how whey permeate can take the place of some salt in a beverage by having attendees try a savory cucumber lemon yogurt drink that not only contained whey permeate in place of salt but also 50% of the Daily Value of calcium.
Premix specialist Fortitech (Schenectady, NY) also showcased solutions under its new service platform for supplying customized, market-ready beverage powders, complete with functional nutrients, flavors, sweeteners, colors, and stabilizers.

Sidebar 3: Here’s to Your Health: Condition-Specific Beverages

Energy
Energy drinks may be one of the older kids on the beverage block. But with energy drinks facing growing public scrutiny of late, more marketers are looking for healthy ingredients to give consumers that boost.
Beneo (Manheim, Germany) says it is seeing demand for Palatinose isomaltulose carbohydrate, positioned as a natural, balanced alternative to stimulant-based energy drinks. It provides energy in the form of glucose, “the essential functional source for mental and physical performance, which is the key to a good energy drink,” says Joseph O’Neill, executive vice president of sales and marketing.
Derived from sugar beet, Palatinose provides energy over a longer period of time, in the form of steady-release glucose, for balanced and sustained energy. Because it is digested and absorbed more slowly, blood glucose and insulin levels remain constant, avoiding the “crash” that stimulant-based beverages can cause.
“Consumers are especially drawn to products that not only create energy but also maintain it. This so-called ‘getting through the day’ sub-trend is due to the fact that people in developed countries are working longer hours, have less leisure time, and are increasingly feeling a lack of energy,” says O’Neill. He says this is appealing to the 35- to 55-year-old consumer over the typical “quick pick-me-up” energy drinks aimed at young adults.
Moreover, Palatinose is non-cariogenic and promotes enhanced fat oxidation, so it can benefit other areas of health and nutrition. O’Neill says energy drinks such as the relaunched Rhino’s are touting this “next generation carbohydrate” to set themselves apart from other energy drinks.
Bioenergy Life Science Inc. (Minneapolis) markets its Generally Recognized as Safe (GRAS) Bioenergy Ribose ingredient as an energy booster that isn’t a stimulant. The company says that D-ribose is a naturally occurring monosaccharide that boosts adenosine triphosphate synthesis, helping the body restore and sustain energy at the cellular level. Moreover, Bioenergy Ribose is highly soluble and stable in beverages.
By focusing on health and energy combined, new opportunities may abound. “Functional drinks not only give consumers an extra boost to make it through the day, but they also help promote a healthy lifestyle and an increased sense of well-being. This is why traditional stimulating substances such as caffeine, taurine, and guarana are less popular these days,” says O’Neill. “Instead, naturals that promote robust health and vitality, along with long-lasting performance, are becoming more attractive.”
Jim Tonkin of Healthy Brand Builders agrees, stating that this could also be a chance for energy drinks to shift focus away from recent public and FDA scrutiny. (FDA’s concern wasn’t over the caffeine in energy drinks; rather, the agency is concerned with incidents of consumers mixing alcohol with caffeine-based energy drinks.)
“I have no issue with caffeine, by the way,” Tonkin says. “In brain health and cardiovascular health, there are a lot of very positive indicators relative to the positive effect of drinking caffeine. Studies have shown that drinking 100 to 150 mg of caffeine per day can be very beneficial for alertness and focus.”
Still, look for a new category to emerge. “I think there’s going to be another round of energy drinks that comes to market—healthful energy drinks that don’t have a lot of the preservatives and negative aspects, maybe without taurine or guarana or glucoranolactone—those major ingredients found in most energy drinks,” Tonkin says. “You’re going to find more drinks with herbs and natural-energy ingredients that can provide almost the same effect, but without the issues of overuse and the potentially harmful effects when mixed with other products.”
Relaxation
As energy drinks emerged, unsurprisingly so has the market for relaxation beverages. “It’s not really a category yet—it’s too small to be a category,” says Tonkin. “However, there are more than 50 products in the space already. Lots of brands have both energy and calming products in their portfolio. We’re probably going to find out in the next year or so whether that space is really going to grow and if consumers are going to get their arms around it.”

L-theanine has emerged as frontrunner. In 2009, under the headline “L-theanine Comes into Focus,” the Los Angeles Times noted L-theanine’s increasing presence in beverages, in brand giants such as SoBe Lifewater, Vitaminwater, and Gatorade. The amino acid is said to increase the alpha waves in the brain and thus induce relaxation. Importantly, it does so without causing drowsiness.

Ethical Naturals (San Anselmo, CA) says studies have shown that L-theanine is able to cross the blood-brain barrier to effectively stimulate alpha-wave production. The company markets its GRAS-affirmed AlphaWave L-theanine for beverages, touting the ingredient’s clear, odorless, tasteless, and stable properties. The company even offers Calming Blend—a mix of purified L-theanine and soothing herbal extracts of chamomile, lemon balm, passion flower, hops, and valerian.

Last year, Blue California’s L-TeaActive branded L-theanine, derived from green tea, was affirmed GRAS by FDA (versus self-affirmed GRAS). Cecilia McCollum, the company’s executive vice president, says this will open new doors to the developing relaxation beverages market. “The demand for this ingredient is growing, and we are just starting our international advertising campaign. L-TeaActive is quickly becoming one of Blue California’s most important products.”

Also providing opportunity? According to McCollum, there are currently only two L-theanine products in the market affirmed GRAS by FDA—and that L-TeaActive is the only one derived from green tea. With L-theanine as part of the pack, alertness and relaxation drinks are seeing an “explosion of innovation” in the United States, according to an earlier report this year from market researcher Zenith International. In less than five years, the market has reached $521 million, with the United States leading demand. In Europe, this category is just beginning to emerge.

Still, warns Tonkin, “I think there’s a lot of confusion about what the term relaxation means. People don’t want to drink a beverage and fall asleep. They’re afraid of that. So I think the marketers have to do a better job of explaining what happens when you drink it and what the effect on your body is going to be.”

Stay tuned.

Other Categories
Beverages are also targeting cognitive health, immune and digestive health, joint health, and beauty.

Kyowa Hakko USA’s (New York City) Cognizin citicoline helps increase acetylcholine levels for improved brain chemistry and function—including increased memory, focus, and attention. The ingredient made its debut in the beverage Nawgan last year. Since then, the brands have formed an exclusive agreement, and Nawgan has gone mass-market in stores such as Walgreens.

“The need for safe ingredients for focus and attention in beverages has increased dramatically in the past few years,” says Karen Todd, Kyowa Hakko USA’s director of marketing. “[Cognizin’s] powerful combination [of cognitive benefits] is important for adults who want to stay focused on tasks, without obtaining negative side effects.”

Immune-health beverages also present opportunities. A. Lassonde’s Oasis Health Break condition-specific beverage line launched an orange juice and fruit smoothie with Biothera’s (Eagan, MN) beta-glucan ingredient Wellmune WGP. Last year, MonaVie launched its acai drinks with Wellmune WGP.

Richard Mueller, Biothera’s president and CEO, says, “We are continuing to see strong growth and demand for beverages that offer real immune-health benefits...Biothera is currently working with a number of companies on development projects with Wellmune in every beverage format, ranging from dairy and juices to water.”

Probiotics are most common in dairy products and dairy beverages, but probiotic ingredients that can withstand a range of conditions, such as Ganeden Biotech’s (Mayfield Heights, OH) spore-forming GanedenBC30 probiotic strain, are seeing broader beverage opportunities—including, in the case of Ganeden BC30, hot tea. Ganeden BC30 is also still being used in more-traditional probiotic dairy products, such as a probiotic chocolate milk launched by Abunda Foods’ MojoMilk last year.
“Although dairy remains the most active area for new probiotic product launches, non-alcoholic beverages have actually been one of the fastest-growing probiotic segments over the past several years,” says Eric Reamer, associate industry manager, beverage and confectionery, for Danisco USA (New Century, KS). “Due to the relative high stability of probiotics in various beverage applications, it is the logical next step as probiotics move beyond the dairy aisle.”

“When formulating probiotics into a beverage, effort should be taken to adjust whatever parameters possible to maximize survivability,” Reamer adds. “Typical challenges that need to be considered are elevated temperatures in processing and storage, and low pH. In order for probiotics to survive processing, they should be added at a point in the process after there are no more heating steps and the product has been cooled. Distribution and storage temperatures should then be in the refrigeration range. If pH can be adjusted (typically to >3.8), survivability can be greatly enhanced. At lower pH levels, high overages may be necessary in order to achieve desired shelf life. Other factors that can influence survivability include water activity (beverage dry blends are an excellent format for probiotic delivery), oxygen content, metabolic carbohydrates, mechanical stress during processing, impact from other additives (colors, flavors, salt, etc.), and inoculation practices.”

Cardiovascular health is also a focus. Cognis Nutrition and Health (Monheim, Germany), now part of BASF (Florham Park, NJ), celebrated the February launch of Danacol, a new Danone product it helped develop. Danacol is Canada’s first drinkable yogurt containing cholesterol-lowering plant sterols. A new cardio concept has also emerged—keeping consumers’ blood circulation healthy when flying on a plane. This spring, RelaxZen Inc. launched drinks with DSM Nutritional Products’ (Parsippany, NJ) FruitFlow natural tomato extract for healthy blood flow.

Bone and joint health are also feeding drink opportunities. Brands like Joint Juice have already found success in this market. Last summer, the brand added chondroitin sulfate and vitamin D3 to its formulas. Vitaminwater and Neuro Drinks capitalized on the Institute of Medicine’s increase of vitamin D DRIs last winter, with Vitaminwater Stur-D and NeuroSun, respectively.

Other bone- and joint-health ingredients are finding opportunities. Last fall, Innovative Food Processors (IFP; Faribault, MN) and InterHealth Nutraceuticals Inc. (Benicia, CA) co-ventured on powdered beverage products—the first being a joint-health drink mix stick pack called Triple Berry Tempo. It incorporates InterHealth’s UC-II undenatured type II collagen, derived from chicken sternum cartilage.

“With the convenience and versatility of mixes such as Triple Berry featuring UC-II, the market for functional beverages is almost certain to grow substantially over the next several years,” says InterHealth CEO Paul Dijkstra. The firms are also looking to develop weight-management and immune-health products.

Nutricosmetics is another emerging market. In a January report on the beauty drinks market, Zenith International called the sector niche but growing. It estimated a 2.9% increase in the global sales last year—and a 29% increase from 2006—taking total global market value to €1.1 billion. In April, BioCell Technologies’ (Newport Beach, CA) flagship ingredient BioCell Collagen II made its debut in a nutricosmetic hot chocolate drink mix called Nightly Beauty. Other ingredients in Nightly Beauty include Ethical Naturals’ AlphaWave Calming Blend; vitamins A, B, C, and E; and biotin and magnesium.

Earlier this year nutricosmetic brand Glisodin added a new product that addresses weight management. Glisodin Skin Nutrients Advanced Slimming Formula contains ingredients such as conjugated linoleic acid to stimulate fat loss, rice protein for satiety and lean body mass, seaweed extract to promote healthy metabolic rate and control excess fat and carbohydrate absorption, green coffee extract to control excess sugar absorption, and melon extract (as the trademark Glisodin ingredient) to fight oxidative stress.

Sidebar 4: Dosing in a Cap

The concept of dosing caps has been around for a while and is starting to see some market action. These caps house a beverage’s nutrients, keeping them separate from the liquid until the time of drinking. Depending on the cap version, a simple twist of the cap might release the ingredients into the liquid. Shake the bottle, and the beverage—now complete with its healthful nutrients—is ready for drinking.

Activate is a U.S. functional waters brand that commercialized its line of condition-specific beverages—including immunity, antioxidant, and energy versions—in dosing-cap bottles. Dosing caps are more than just a marketing gimmick, the brand says on its website. “According to our research conducted in partnership with an independent analytical laboratory, vitamins and other
ingredients lose their potency sitting in water. By storing the active ingredients inside the unique cap, separate from the water, the ingredients stayed powerful, fresh, and offered the convenient, all-in-one delivery method we were seeking.”

Jim Tonkin of Healthy Brand Builders believes this concept is going to “take shape” in the next five years because “it reduces issues with shelf life.”

“I think there will be multiple other companies that will bring dosing-cap technologies to a bigger, better place in the next year or two,” Tonkin predicts. “As you’ve seen the stick pack grow in both strength and acceptance by the consumer through products like Crystal Light, you’ll also see the dosing cap end up in that segment of the market as a standalone item—not particularly sold or married to a bottled water or another beverage.”

He says dosing caps may also enable the inclusion of some ingredients that are typically challenging for ready-to-drink beverages, such as creatine. “Creatine does not sit well in beverages. It will end up in the bottom of the bottle. [With dosing caps], it’s a perfect way to keep creatine separate and keep its dosage at its highest optimum potential.”

Sidebar 5: Market Perspective

Paul Nadel, President, Neuro Drinks

* Condition-specific marketing has become a hallmark for this brand, which offers beverages with catchy names like Sonic, Bliss, Sleep, Trim, Sun, Gasm, Aqua, and Sport. NeuroSun vitamin D drink launched last year, complemented by the Institute of Medicine’s increase of vitamin D DRIs.

Did the recession impact your sales at all?
Fortunately, we have not seen the recession as having a negative impact on our sales. As a truly functional beverage, we have seen that our consumers are willing to pay for a product that actually provides a benefit. Consumers are more careful than ever in connection with how and where they spend their money. Neuro presents itself as a sensible spend due to its efficacy, great taste, and the positive impression that it leaves with the customer. I do feel that the functional category is certainly crowded and that a successful brand must separate itself from the herd. Our Neuro brand message and our product offerings are unique, and the fact that we focus so much on scientific research and ingredient choice does tend to set us apart.

Bill Lange, VP of Marketing, Zico

How has coconut water demand grown?
Since launching the coconut water category in 2004, Zico has continued to experience high triple-digit growth every year, including 2010. With Zico’s expansion into new retailers and regions of the country literally weekly, we expect to nearly triple in size in 2011. However, the coconut water category is still extremely small on a national basis compared to other beverage categories. Therefore, we see significant additional growth ahead as mainstream America begins to discover the incredible replenishment properties of coconut water.

Is the coconut water market crowded?
The coconut water category has become extremely crowded, and we continue to expect that more new brands will be joining. The key to Zico’s success has and will continue to be providing the healthiest, highest-quality products on the market and by constantly bringing consumer-centric innovation to the category, such as the launch of Zico’s [lower-carbon-footprint] bottle. Another such innovation is the new Zico Chocolate, which launched in April in order to bring Zico into new usage occasions for our existing customers but also bring consumers who may not have been interested in the coconut water category in the past into the Zico franchise.

Travis Arnesen, Director of PR, Ex Drinks LLC

* Earlier this year, the company launched Ex Aqua Vitamins, a natural functional water line offering B vitamins and Fruit Up, a fruit-derived, low-glycemic sweetener.

Why do customers like vitamin water?
Water is a good delivery system for people because people often drink water. We didn’t create our beverages solely for the purpose of delivering vitamins, but we wanted to offer the natural alternative to other functional drinks currently on the market. Based on what we found, we decided to offer Ex Aqua vitamins—refreshing water, natural fruit extracts, and vitamins. By using
low-glycemic (34) natural fruit sweetener, and vitamins, we’ve creating a great-tasting, guilt-free beverage that is a high source of vitamins B3, B5, and B6, and a good source of vitamins B7, B12, and E. These are all water-soluble vitamins, so water seems to be an appropriate delivery format. Also, some people simply don’t like taking pills; therefore, a ready-to-drink enhanced water is a great option.

Is the market for vitamin water crowded?
Absolutely. The enhanced-water market is extremely crowded, competitive, and typically—as with many maturing categories—very price driven.

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